METHOD AND APPARATUS FOR ACCURATELY MODELING DIGITAL SIGNAL PROCESSORS

ABSTRACT OF THE INVENTION

A method for modeling digital signal processors (DSP) in a C++ environment is disclosed. In particular, the method models and converts an operation (or function) from a floating-point model to a given DSP fixed-point processor model. The invention defines a vector space for each DSP fixed-point processor, as a direct sum of each distinct fixed bit length data representation sub-space. The direct sum of all DSP fixed-point processor vector sub-spaces forms a working vector space. Furthermore, the invention defines an operator projection to be performed on the working vector space such that redundancy in the operational behavior of the DSP's to be modeled may be exploited. In the preferred embodiment, the working vector space is in a C++ environment. A C++ class is defined for each distinct fixed bit length data representation of a given DSP fixed-point processor. The behavior of the given DSP fixed-point processor is then modeled in a C++ environment using the library of classes.